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RE: Environmental impacts and the Environmental Impact Study for the Modification of the Condor I and Condor 2 Military Operations Area

To: Kat Fuller, AICP, Chief of Planning, Maine Dept. of Transportation

Enclosed you will find my environmental concerns including a discussion of cumulative impacts based on the EIS provided by the Air National Guard. The word "Significantly" is used over and over again in the EIS. "Significantly", when used in a legal and/or technical setting has a very specific and legally important definition. The ANG has misused, over used and diluted "significantly". Therefore I have included the Code of Federal Regulations definition of "significantly" as well as the requirements for review of Cumulative Impacts. I have attached the documents with my letter.

Air Quality

There are six significant compounds covered in Condor 1 and 2 MOA's data on important pollutants. The values or quantities given are not a true representation of the tons per year emissions as stated in the document. Section 3-24, beginning line 13, states the emissions estimates were generated using data over a wide area and a range of altitudes. At high altitudes the bulk of the compounds emitted disperse over a large area. At the lower flight altitudes requested much more of the effluent gases will reach the surface, our valleys and villages, with cumulatively greater affects.

Concentrations of NO_x, SO_x, CO, PM₁₀, PM_{2.5} and VOCs based on Table 3.9 will add 65 tons/year of pollutants to our district, based on the current flights.

Jet fuels JP-4 and JP-8, used in military aircraft; consist of a complex mixture of hydrocarbons, poly aromatic hydrocarbons (PAHs), naphthalene and benzene, and kerosene to name a few. Lowering the flight floor to 500 feet above ground level will increase the concentrations of these criteria pollutants and hydrocarbons to a level of concern.

Volatile Organic Compounds (VOCs) from jet fuel are petroleum hydrocarbons that have a high enough vapor pressure to significantly vaporize into the atmosphere, most often from incomplete fuel combustion but occasionally from spills and leaks. VOCs react with NO_x (Nitrogen Oxide) in the atmosphere and form Ozone. When concentrations are high enough this has a direct effect on buildings, plants and animals. Symptoms include respiratory tract irritation on human and animals, headaches, dizziness and memory impairment.

Ozone (O₃) a by-product from jet emissions can impact crops, trees and plants by interfering with the ability of plants to produce and store food so that growth, reproduction and overall plant health are compromised, thus weakening and making them more susceptible to disease, insect attack and harsh weather.

Nitrogen Oxides (NO_x) in the atmosphere is a precursor to both ozone and acidic precipitation, which can harm aquatic and terrestrial ecosystems. Acid rain can cause surface water acidification and damage to trees. It can contribute to the formation of particles in the atmosphere and decrease visibility in the affected area.

Carbon Monoxide (CO) affects the cardiovascular system in both humans and animals. It is seen as a “green house gas”, one of several contributing to the increase in global warming.

Particulate Matter (PM), including PM₁₀ and PM_{2.5} micron size particles, is a generic term for a broad class of chemically and physically diverse substances that exist as discrete particles over a wide range of sizes. PM can be emitted directly or may be formed in the atmosphere by the transformation and combination of gaseous compounds emitted from aircraft. Health effects include aggravation of asthma and increased respiratory illness. The EPA website informs us that 1 in 13 school aged children have asthma and the rate is increasing faster in preschool aged children than in any other groups. It is worth noting that asthma is the leading cause of school absenteeism due to chronic illness.

Sulfur Dioxide (SO₂) once released into the environment, moves through the air and is oxidized to sulfate via a variety of mechanisms forming “acid rain.” Sulfur dioxide causes a wide variety of health and environmental impacts because of the way it reacts with other substances in the air. People with asthma or heart and lung ailments are particularly affected by its release into the environment. Haze occurs when light is scattered or absorbed by particles and gases in the air, thus reducing visibility in many parts of the US, including our National Parks. SO₂ and nitrogen oxides react with other substances to form acids which fall to the ground and are absorbed by soil and water. Acid rain damages forests and crops, change the makeup of soils, and make streams and lakes acidic and unsuitable for fish and over time and exposure can changes the very natural variety of plants and animals in an ecosystem.

Ambient air quality monitoring is limited and does not represent the whole proposed area. Rumford exceeded the PM_{2.5} once in 2004 and Coos County, New Hampshire exceeded ozone limits three times in the same year. Under the proposed Condor 1 and Condor 2 modification 144 miles of the Appalachian National Scenic Trail, 1,260 acres of the White Mountain National Forest and 3,680 acres of land in the Lake Umbagog National Wildlife Refuge will be impacted by the proposal. Maine has designated 59,790 acres of the High Peaks Region for protection. In phase two of the Initiative 46,344 acres will be proposed for protection. The state parks affected by this proposal include Mount Blue, Rangeley Lakes and Grafton Notch State Park.

Section 6.0 Summary of Findings: Under 'Air Quality' the EIS claims the proposed action would have no significant effect on air quality, but would cause minor ground-level air quality impacts, however overall air quality would improve. Sorry, how is that? This statement is based on the on going Base Realignment and Closure (BRAC) actions in the region (ES, line 28, page 3, line15) and apparently indicates that the over all effects would be beneficial. This does not represent the underlying area of Condor 1 and Condor 2 modification and is very misleading. While Brunswick's air quality will undoubtedly improve once the Naval Air Station is closed the air quality in the Condor 1 and 2 areas will only be negatively impacted by the more concentrated, lower altitude exhaust emissions resulting from increased, lower altitude sorties here.

Bird-Aircraft Strike Hazard

Air Force and Navy have reported at least 3,000 strikes of migratory birds by military aircraft causing in excess of \$75 million in damage every year. In Condor 1 and 2 the flight floor is currently between 2,800 and 6,300 feet. Studies show 95 % of migratory movements of birds is below 10,000 feet so the military has training to reduce the collisions with birds, called Bird Aircraft Strike Hazard (BASH). BASH uses an Avian Advisory System on three different threat levels, low, moderate and severe, with modifications to flight plans for each level. Special radar can detect bird flocks up to 60 nautical miles from an airfield. Each airfield is identified individually and a bird strike risk is evaluated for a distance of five nautical miles from the center of each airfield. This means the advisory system reflects bird strike risk conditions on the airfield and within 5 nautical miles. It does NOT indicate bird flights and risk of bird/aircraft collision out on the practice areas. The aircraft coming here fly from the Barnes Air National Guard Base in Westfield, Mass to the Military Operation Areas (Condor 1 and 2), which is 200 nautical miles north of the base. The BASH risk evaluation is valid around the airfield, but apparently not even assessed in Condor 1 and 2.

Flares, Chaff and Wildfires

Section 2.0 Current Training Activities require the use of Chaff and Flares used in military operations. Chaff is used to decoy enemy missiles from aircraft. It is made of fiberglass covered aluminum and its function is to confuse enemy radar. There has been no study on the extent of break-up and abrasion of chaff particles that could be inhaled by animals and humans. A lab test was performed on a sample of Chaff and learned that it biodegrades about as quickly as an aluminum can. Further study is needed to determine the affects of high use of chaff.

Flares are magnesium pellets that when ignited burn for a short period of time, roughly ten seconds, at 2,000 degrees Fahrenheit. The flare attracts and decoys heat seeking weapons targeted on the aircraft. Fires from flares are rare but do occur. The Seal fire, September 10, 1996, on Naval Air Station Fallon was started by a flare during helicopter training, and the Meadow Valley fire of 1993 burned over 21,000 acres at the Nellis Range Complex in southern Nevada and cost \$ 300,000 to fight. One misfire of a flare resulting in a large scale fire in the

mountains of western Maine would take decades to recover from. If flares fired from high altitudes can still reach the ground hot, what is there to prevent superheated flares from reaching our dry forests from less than 1,000 feet? Since misfires have occurred over Fallon Naval Air Station and Nellis, I cannot accept military assurances that my land will not be torched by one here. Maine's has 2.6 million acres of industrial forest and a fire in the corridor of Condor 1 and 2 would devastate local economies and the ecologies they depend upon.

Noise Levels affecting humans and animals

The noise evaluation in the EIS is based on annual operations and the type of mission flown by military aircraft currently operating in the Condor 1 and 2 region. Section 4-38, line 5 starts by stating the instantaneous maximum level (L_{max}) on the surface for an F-15 flying at 500 feet is 115.7 dB. Is this plane in steady state, at constant speed? What happens to the dB when it is accelerating or climbing or executing other full power maneuvers? The EIS notes that standard practice protocols call for up to 8 aircraft at a time to be involved in these exercises. I interpret this to mean that the area in the 'sound footprint' will be subjected to at least 140dB, repeatedly, as the pilots carry out their exercises, and any given valley or "sound footprint" will be subjected to repeated high noise events, and since they are operating so much lower, the sound blast will be trapped in the valleys and basins. It also admits that noise levels in excess of 110 dB will result in secondary vibrations, such as rattling of pictures, window panes but will be negligible because they would have a short duration (15-20) seconds.

A human's audio pain threshold is 120 dB. The EPA's Noise Abatement and Control guideline dictates that when exposure is to intermittent noise, the level should not exceed 70 dB. While your children, horses or wild animals may be able to cope with one blast of sound, once these assaults exceed the pain threshold, and are repeated in rapid succession the affected parties will indeed panic, with foreseeable consequences. Rural land is primarily small home sites, agricultural property and forest. For these areas the primary considerations are the prevention of adverse effects on domestic and wild animals. Harmful exposure levels for animals is not known due to the lack of data, but studies indicate that hearing damage risk for animals is substantially different from that of humans. "The use of military aircraft at supersonic speeds has already resulted in damage claims being made (and in some cases, being paid) for alleged injury or losses in domestic livestock" (Ewbank 1977). This has prompted a number of investigations of the effects of noise on domestic farm animals, including the physiological effects of aircraft noise on dairy cows, goats, pigs, and sheep. I submit that the extreme levels of sound livestock and wildlife will be exposed to by the low level exercises will not result in "habituation." In fact, they will react in panic, resulting in injury and exhaustion. As a ready example consider how your dog reacts to thunder. Most animals exhibit erratic and panicky behavior when subjected to sudden loud noises, with the most instantaneous and extreme reactions being to thunder, sudden bursts of very heavy engine noise and the sounds of aircraft.

Our unpopulated areas include wilderness, parks, lakes and streams that provide enjoyment of the outdoors. Quiet is of paramount importance in these areas. Residents and tourists enjoy the special qualities of serenity and tranquility found here. While it is not possible to identify a maximum permissible noise level to prevent activity interference and annoyance, repeated exposures of 70 to 130 dB far exceed our ability to remain serene. This is much more than a vague discomfort to a few hill folk. This is a threat to a large part of our livelihood. Many of us depend upon this very peace and quiet to bring in the tourists upon whom we depend for our incomes. Your jet noise will not only adversely impact the wild life of the area; it will reduce the enchanting ambiance that attracts vacationers to our area, hence costing us much of our livelihood.

Wildlife and Bird Impacts

Section 3-37, line 18, states the Canadian Lynx and the Bald Eagle are the only federally listed endangered species that are known or likely to occur in the area under the Condor 1 and Condor 2 MOAs. There are 15 known bald eagle nesting sites underlying the proposal. The USFWS recommends avoiding flights below 1000 feet AGL over these sites during the nesting season. The MDIFW is requiring a 0.25 mile buffer around all essential habitat areas. There are historical Golden Eagle nesting sites located around the Kibby Windpower project and the Sisk mountain range next door. How is the ANG going to keep a 0.25 mile buffer around the known sites when flying at high speeds and maneuvering for training. The ANG does not adequately address this issue. The Canadian Lynx habitat has been established in Maine. (See attached map provided by Mark McCollough, Endangered Species Specialist, U. S. Fish and Wildlife Service) The effect of aircraft on the Lynx habitat has not been adequately addressed in the EIS. Special attention should be paid to the letter in Appendices, from the United States Department of Interior, Fish and Wildlife Services, dated July 16, 2007 from Marvin E. Moriarty, Regional Director concerning the potential impacts to Lake Umbagog National Wildlife Refuge.

Cumulative Effects

Section 5.0 in the EIS under Cumulative Impacts does not address the significant accumulative impacts to the total area of the proposed Condor 1 and Condor 2 modification. In table 5.1 consideration of Resources for Cumulative Impacts Analysis states under:

- Airspace Management: *“No significant adverse impact.”* How can they state this, given seven civilian airports are under the proposal? Safety of state and federal fish and wildlife biologist/pilots doing surveys in the Condor MOA area was not mentioned in the table, nor adequately addressed in the EIS.
- Safety: *“No adverse effect, minor increase in probability of Class B mishaps”*, which is stated in section 3-10, line 18 that historically F-15 are prone to be involved in Class B mishaps, which result in a permanent partial disability with a total cost in excess of \$200,000

but less than \$1 million for injury, occupational illness, and or property damage or inpatient hospitalization of three or more personnel. A big mishap or fire could physically devastate this area. In addition, the area could be economically damaged if tourism and historical uses such as hunting, hiking and fishing were curtailed. Again seven civilian airports are in the area of the proposal and the safety of pilots and passengers in small slow planes is not adequately addressed.

- Noise: *“Minor adverse effect on L_{dn} , and SEL outside the existing MTRs.”* In section 5-10 lines 3 and 13 again include the BRAC decisions concerning future benefits in their sound assessment. The sound assessment should not include BRAC decisions in their analysis. A sound engineer would be able to examine their modeling methods and analysis and determine the true impact on noise and intensity. Little is mentioned about domestic or wildlife impacted by noise.
- Air Quality: *“Minor negative effects due to low altitude emissions but no significant impact.”* The data provided does not give a fair representation of the true tons per year of criteria pollutants. A total of 65 tons per year does in fact qualify as “significant.”
- Geological: According to the DEIS Water and biological resources will have no adverse effect. Given the potential for soluble pollutants to settle and accumulate in rivers, streams, sub-alpine forest and soils the potential for impact should be addressed further.
- Land Use: *“Minor negative effect on lands that are currently not subjected to low altitude overflights.”* Again it states *“no significant adverse effects on the affected airspace as a whole.”* Seven civilian airports will be significantly impacted by the ANG flights and will restrict flights that are currently in use now. Civilian pilots fly under visual flight rules (VFR). The essential collision avoidance safety principle is a “See and Avoid” method. A small aircrafts speed is from 80 to 110 miles per hour and an F-16 speed is around 400 miles per hour. The EIS states that civilian pilots are accustomed to sharing airspace with military aircraft. This is not the case. A local pilot told me a wake from an F-16 can pull a small airplane into a direct and fatal nose dive. I believe this is a “significant” impact.
- Socio-economics: *“No adverse effect.”* One fire could devastate a given town’s or water shed’s timber industry as well as its tourism and recreational uses. Not even mentioned are any lasting effects of ground disturbance from mudslides due to exposed soil and ground.
- Potential for Bird Strikes: Section 4-23 line 19 states “most birds fly below 500 feet except when migrating.” Most migrating birds fly below 10,000 feet and the BASH system does not cover the proposed area, only around the airfield in Massachusetts. The letter dated July 16, 2007 from Marvin E. Moriarty of the Fish and Wildlife Service voiced concerns on the impact to bald eagles, American Black duck and ring neck duck. Peregrine falcons are known to forage in the area and are known to nest near the Dead Cambridge River in Maine and the Diamond River in New Hampshire. Wintering areas for deer are found throughout the Refuge and Northern Maine. Deer are particularly vulnerable to any disturbance that causes them to expend additional energy during winter. The Androscoggin River watershed is a known flyway and a major migratory route for waterfowl, passerines, and shorebirds. The letter includes noise impact to bald eagles and wildlife. Please read the letter to fully understand their concerns. I don’t believe a 2,000 foot AGL buffer is adequate and possible when up to eight aircraft are flying at the speed of 400 miles an hour.

The cumulative impacts of the proposed modification of Condor 1 and Condor 2 is “significant” and meets its definition based on the Code of Federal Regulations, Title 40—Protection of Environment, Chapter V—Council on Environmental Quality attached with this letter.

To quote Maine’s Council on Quality of Place:

“Maine’s quality of place is our majestic mountains, unbroken forests, open fields, wild rivers, pristine lakes, widely-celebrated coast, picturesque downtowns, lively arts and culture, authentic historic buildings, and exceptional recreational opportunities. It is our principal advantage in today’s global economic competition. Quality of place will help us keep and attract skilled workers and entrepreneurs to fill Maine’s declining workforce population”.

Title 40 –Protection Of Environment, Chapter V—Council On Environmental Quality, Part 1508_ Terminology and Index—Table of Contents.

Section 1508.27 “Significantly”. Significantly as used in NEPA requires considerations of both context and intensity (*National Environmental Protection Act*):

(a) Context. The significance of an action must be analyzed or examined with focus on how it will affect society as a whole, the affected region, the affected interests, and the locality. It is not enough to examine each result as a single item. All must be viewed as a system and the effect upon the entire system is the “context.”

Significance varies with the setting or “context” of the proposed action.

(b) Intensity. “This refers to the severity of impact”.... “the following should be considered in evaluating intensity:”

(1) Impacts may be beneficial and adverse. A significant adverse effect may exist even if the Federal agency believes that on balance the effect will be beneficial. *Example: On the whole training of pilots is a good thing, but we may decimate the eagle and hawk population.*

(2) The degree to which the proposed action affects public health or safety.

(3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically *fragile* areas.

(4) The degree to which the effects on the quality of the human environment are likely to be highly controversial.

(5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

(6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

(7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. “Significance” exists if it is reasonable to anticipate a cumulatively significant impact on the environment. “Significance” cannot be avoided by terming an action temporary or by breaking it down into small component parts.

(8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

(9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

(10) Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

Consideration of Cumulative Impacts In EPA Review of NEPA Documents
U.S. Environmental Protection Agency, Office of Federal Activities (2252A)
EPA 315-R-99-002/May 1999

Cumulative impacts result when the effects of an action are added to or interact with other effects in a particular place and within a particular time. It is the combination of these effects, and any resulting environmental degradation, that should be the focus of cumulative impact analysis. While impacts can be differentiated by direct, indirect, and cumulative, the concept of cumulative impacts takes into account all disturbances since cumulative impacts result in the compounding of the effects of all actions over time. Thus the cumulative impacts of an action can be viewed as the total effects on a resource, ecosystem, or human community of that action and all other activities affecting that resource no matter what entity (federal, non-federal, or private) is taking the actions. Consistent with the CEQ regulations (CEQ, 1987), effects and impacts are used synonymously in the guidance.